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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,741	06/22/2006	Tsutomu Sato	72277	1012
23872	7590	11/19/2007		
MCGLEW & TUTTLE, PC. P.O. BOX 9227 SCARBOROUGH STATION SCARBOROUGH, NY 10510-9227			EXAMINER EOFF, ANCA	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 11/19/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/596,741	Applicant(s) SATO, TSUTOMU	
	Examiner Anca Eoff	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 10 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Status

1. Claims 1-12 are pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hidaka et al. (WO 00/29214) in view of Takeda et al. (US Pg-Pub 2004/0023153).

With regard to claim 1, Hidaka et al. disclose a positive photosensitive printing plate composition comprising an alkali-soluble resin and a photo-thermal conversion material (page 8, lines 15-17).

The alkali-soluble resin can be a resin containing at least a novolak resin (polycondensation product of an aldehyde with a phenol) or a polyvinyl phenol resin (page 30, line 14-page 31, line 19).

The photo-thermal conversion material is a material absorbing light having a wavelength range from 600 nm to 1,300 nm and converting it into heat (page 8, line 30-page 9, line 2).

The composition can also include a solubility-suppressing agent (page 32, lines 9-13), equivalent to the dissolution inhibitor of the instant application.

The composition can also include a compound capable of crosslinking the alkali-soluble resin by effect of heat (thermocrosslinking compound) (page 36, lines 24-26). One of the preferred cross-linking compounds is Cymel 300 (page 37, line 20), which is a melamine-formaldehyde resin, as disclosed in par.0016 of Hu et al. (US Pg-Pub 2003/0100686).

Hidaka et al. specifically disclose a photosensitive composition comprising

- 86.95 wt% of m-cresol/p-cresol/phenol alkali-soluble resin;
- 3.4wt% of the photo-thermal conversion material;
- 8.6 wt% of the solubility-suppressing agent, all based on the total weight of the alkali-soluble resin, photo-thermic conversion material, solubility-suppressing agent and Cymel 300 (thermocrosslinking compound) (page 59).

It is known in the art, as shown by Takeda et al., that a small amount of dissolution retardant/inhibitor in a composition may not yield to a composition with an improved resolution and a large amount of dissolution inhibitor/retardant may lead to slimming of the patterned film and to a decline in resolution (par.0064).

Therefore, the amount of dissolution retardant/inhibitor is a result-effective variable and can be optimized.

A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) (The claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art

did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result-effective variable.). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (MPEP 2144.05-II. Optimization of Ranges)

It would have been obvious for one of ordinary skill in the art at the time of the invention to use the claimed amount of the dissolution inhibitor in the composition of Hidaka et al. as it has been shown that a high amount of dissolution inhibitor may produce the slimming of the patterned film and a decline in resolution (Takeda et al., par.0064).

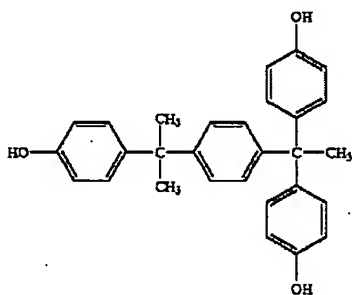
With regard to claims 5-7, Hidaka et al. disclose a method of producing a photosensitive lithographic printing plate comprising the following steps:

- coating on an aluminum plate a composition comprising m-cresol/p-cresol/phenol novolak resin, a photo-thermal conversion material, a solubility-suppressing agent and Cymel 300 melamine-formaldehyde resin, to obtain a photosensitive lithographic printing plate precursor (page 59, lines 7-10);
- exposing by a semiconductor laser plotter at 830 nm (page 61, lines 11-14);
- developing with an alkali developer for positive lithographic plates (page 61, lines 14-15).

4. Claims 2 and 10 - 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hidaka et al. (WO 00/29214) in view of Susukida et al. (WO 00/34829, wherein the citations are from the English equivalent, US Patent 6,475,693).

Hidaka et al. disclose the a composition comprising a phenolic alkali soluble resin, a photo-thermal conversion material, a solubility-suppressing agent/dissolution inhibitor and a melamine-formaldehyde resin as applied to claim 1 (see paragraph 3 of the Office Action). Hidaka et al. teach a variety of solubility-suppressing agents (page 32, line 15 – page 33, line 9), including compounds with a triarylmethane skeleton (page 32, lines 18-19) but fail to include the solubility-suppressing agent/dissolution inhibitor represented by formula (1) of claim 2 of the instant application.

Susukida et al. disclose a radiation-sensitive resin composition containing a radiation-sensitive novolak resin and a dissolution inhibitor (column 2, lines 22- 32). In a specific example, Susukida et al. further disclose a positive-working composition comprising novolak resin C and a dissolution inhibitor represented by the formula (I):



(I) (column 9, lines 20-40). The compound has a triarylmethane skeleton.

The positive-working radiation-sensitive composition shows high resolution and forms a pattern with good shape and a high aspect ratio, forms no scum and shows excellent micro-grooving properties (column 10, lines 60-64 and column 11, lines 1-2).

Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to use the dissolution inhibitor of Susukida et al. in the composition

of Hidaka et al., since Hidaka et al. already disclosed the used of a dissolution inhibitor with a tryarylmethane skeleton and in order to obtain a composition showing high resolution and in order to form patterns with good shape and high aspect ratio, forms no scum and shows excellent micro-grooving properties (Susukida et al, column 10, lines 60-64 and column 11, lines 1-2).

With regard to claims 10 - 12, Hidaka et al. disclose a method of producing a photosensitive lithographic printing plate comprising the following steps:

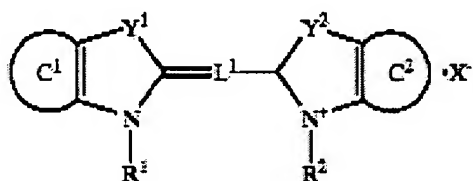
- coating on an aluminum plate a composition comprising m-cresol/p-cresol/phenol novolak resin, a photo-thermal conversion material, a solubility-suppressing agent and Cymel 300 melamine-formaldehyde resin, to obtain a photosensitive lithographic printing plate (page 59, lines 7-10);

- exposing by a semiconductor laser plotter at 830 nm (page 61, lines 11-14);
- developing with an alkali developer for positive lithographic plates (page 61, lines 14-15).

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hidaka et al. (WO 00/29214) in view of Parsons et al. (US Patent 6,280,899).

Hidaka et al. specifically disclose a photosensitive composition comprising a m-cresol/p-cresol/phenol novolak resin, a photo-thermal conversion material, a solubility-suppressing agent and Cymel 300 melamine-formaldehyde resin as applied to claim 1 (see paragraph 3 of the Office Action).

Hidaka et al. further disclose that one of the preferred photo-thermal conversion material is a cyanine dye represented by the formula (II):



(II) (compound of formula (I) on page 28)

In the formula (II) above, each of the rings C¹ and C² can be benzene or naphthalene rings which may have a substituent, each of Y¹ and Y² are independent of each other and can be dialkylmethylene groups or sulfur atoms, each of R¹ and R² can be hydrocarbon groups which may have a substituent, L¹ is a tri-, penta- or heptamethine group which may have a substituent, provided that two substituents in said penta- or hepta-methine group may bond to each other to form a C₅₋₇ cycloalkene ring and X⁻ is a counterion (page 28, line 24-page 29, line 5).

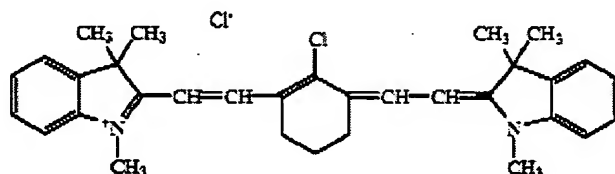
However, Hidaka et al. do not specifically disclose the compound of formula (2) of the instant application.

Parsons et al. disclose a heat-sensitive composition for lithographic printing plates comprising an aqueous developer soluble polymer, such as a phenolic resin, a compound that reduces the aqueous developer solubility of the polymer and an infrared absorber (abstract).

The infrared absorber can be an organic pigment or dyes such as a phthalocyanine pigment, a dye or a pigment of squarylium, merocyanine, cyanine, indolizine, pyrilium (column 9, lines 23-28). These compounds act as photo-thermal

conversion material, as disclosed by Hidaka et al (WO 00/29214, page 28, lines 14-19).

Parsons et al. further disclose that the infrared absorbing material can be a compound having the formula (III):



(III) (column 9, line 55).

The compound of formula (III) is equivalent to the compound of formula (2) of the instant application, when R¹, R², R⁴, R⁵ are hydrogen atoms, R³ and R⁶ are -CH₃ groups and X⁻ is a halogen atom, specifically Cl⁻.

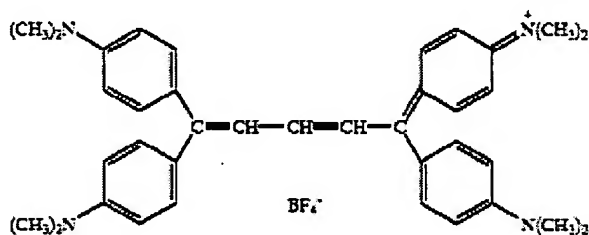
Since the compound of formula (III) meets all the limitations of Hidaka et al. for a cyanine dye of formula (II) as shown above and the compound of formula (IV) is successfully used in the composition for planographic printing plates of Parsons et al. it would have been obvious for one of ordinary skill in the art at the time of the invention to use the cyanine dye of formula (III) as photo-thermal converting material in the composition of Hidaka et al.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hidaka et al. (WO 00/29214) in view of Tsuruya (JP 2002-189294).

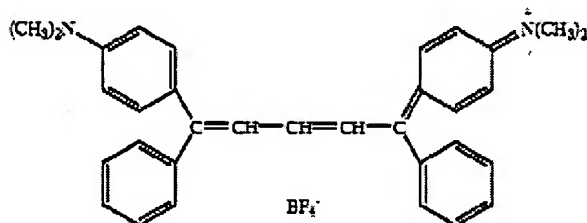
Hidaka et al. specifically disclose a photosensitive composition comprising a m-cresol/p-cresol/phenol novolak resin, a photo-thermal conversion material, a solubility-

suppressing agent and Cymel 300 melamine-formaldehyde resin as applied to claim 1 (see paragraph 3 of the Office Action).

Hidaka et al. further disclose that the photo-thermal conversion agent can be a compound of formulas (IV) and (V):



(IV) (compound S-43 on page 22)



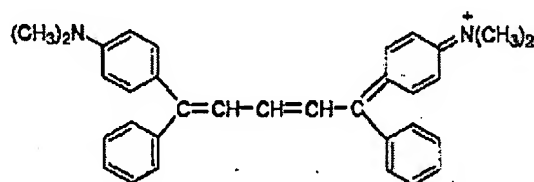
(V) (compound S-44 on page 22) but fails to disclose a compound as the one represented by the formula (3) of the instant application.

Tsuruya discloses a positive image forming composition comprising a photothermal converting material and an alkali-soluble resin which contains a novolak resin and/or phenolic resin (abstract). The composition can also contain a dissolution retardant (par.0054), equivalent to the dissolution inhibitor of the instant application and a crosslinking agent, such as Cymel 300 (par. 0055 and par. 0068), which is a melamine-formaldehyde resin, as disclosed in par.0016 of Hu et al. (US Pg-Pub

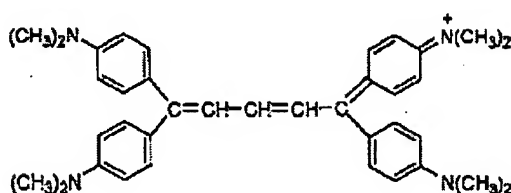
2003/0100686). The positive image forming material of Tsuruya provide a printing plate with a large development latitude and excellent in processing stability (abstract).

The photo-thermal converting material ("light-to-heat conversion material") is a compound that transform absorbed light into heat, said absorbed light having the wavelength preferably in the range of 800 to 1,100 nm (par.0011).

Tsuruya further discloses that the photo-thermal converting material can be a compound of formula (VI) or (VII):



(VI)



(VII)

(compounds III-1 and III-3 in par.0036), with an anion portion X^- being be p-toluene sulfonic acid ($\text{p-CH}_3\text{-C}_6\text{H}_4\text{SO}_3^-$), Cl^- , Br^- , I^- , ClO_4^- , PF_6^- , BF_4^- , benzene sulfonic acid (par.0028).

The compound of formula (VI) is equivalent to the compounds of formula (3) of the instant application, where R^7 and R^9 are $-\text{N}(\text{CH}_3)_2$ groups, R^8 and R^{10} are hydrogen atoms and Y^- is $\text{p-CH}_3\text{-C}_6\text{H}_4\text{SO}_3^-$

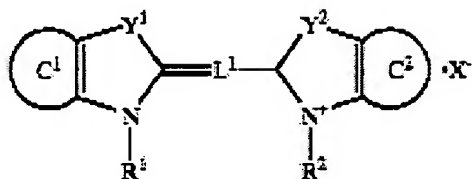
The compound of formula (VII) is equivalent to the compounds of formula (3) of the instant application, where R^7 , R^8 , R^9 , R^{10} are all -N(CH₃)₂ groups and Y⁻ is p-CH₃-C₆H₄SO₃⁻.

Since the compounds of formulas (I) and (II) are functionally equivalent to the photo-thermal converting material of formulas (IV) and (V) of Hidaka et al. and are successfully used by Tsuruya in a positive -working image forming layer of a printing plate (Tsuruya, abstract), it would have been obvious for one of ordinary skill in the art at the time of the invention to use the compounds of formulas (VI) or (VII) as photo-thermic converting material in the composition of Hidaka et al.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hidaka et al. (WO 00/29214) in view of Susukida et al. (WO 00/34829, wherein the citations are from the English equivalent, US Patent 6,475,693) as applied to claim 2 above and in further view of Parsons (US Patent 6,280,899).

With regard to claims 2 and 8, Hidaka modified by Susukida teach a composition comprising a m-cresol/p-cresol/phenol novolak resin, a photo-thermal conversion material, a solubility-suppressing agent and Cymel 300 melamine-formaldehyde resin, wherein the dissolution inhibitor meets the limitations of formula (2) as applied to claim 2 above (see paragraph 4 of the Office Action).

Hidaka et al. further disclose that one of the preferred photo-thermal conversion material is a cyanine dye represented by the formula (II):



(II) (compound of formula (I) on page 28)

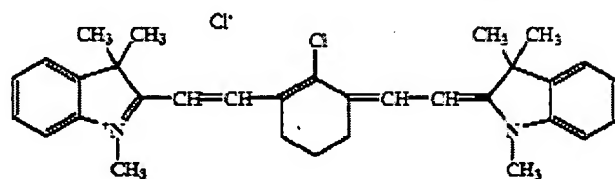
In the formula (II) above, each of the rings C¹ and C² can be benzene or naphthalene rings which may have a substituent, each of Y¹ and Y² are independent of each other and can be dialkylmethylene groups or sulfur atoms, each of R¹ and R² can be hydrocarbon groups which may have a substituent, L¹ is a tri-, penta- or heptamethine group which may have a substituent, provided that two substituents in said penta- or hepta-methine group may bond to each other to form a C₅₋₇ cycloalkene ring and X⁻ is a counterion (page 28, line 24-page 29, line 5).

However, Hidaka et al. and Susukida et al. do not specifically disclose the compound of formula (2) of the instant application.

Parsons et al. disclose a heat-sensitive composition for lithographic printing plates comprising an aqueous developer soluble polymer, such as a phenolic resin, a compound that reduces the aqueous developer solubility of the polymer and an infrared absorber.

The infrared absorber can be an organic pigment or dyes such as a phthalocyanine pigment, a dye or a pigment of squarylium, merocyanine, cyanine, indolizine, pyrilium (column 9, lines 23-28). These compounds act as photo-thermal conversion material, as disclosed by Hidaka et al (WO 00/29214, page 28, lines 14-19).

Parsons et al. further disclose that the infrared absorbing material can be a compound having the formula (III):



(III) (column 9, line 55).

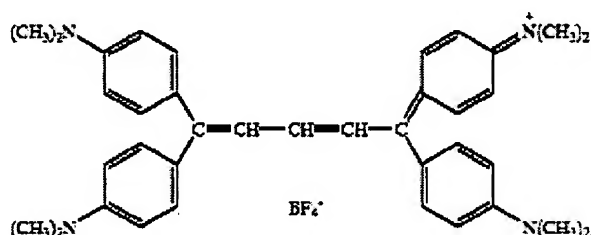
The compound of formula (III) is equivalent to the compound of formula (2) of the instant application, when R¹, R², R⁴, R⁵ are hydrogen atoms, R³ and R⁶ are -CH₃ groups and X⁻ is a halogen atom, specifically Cl⁻.

Since the compound of formula (III) meets all the limitations of Hidaka et al. for a cyanine dye of formula (II) as shown above and the compound of formula (III) is successfully used in the composition for planographic printing plates of Parsons et al. it would have been obvious for one of ordinary skill in the art at the time of the invention to use the cyanine dye of formula (III) as photo-thermal converting material in the composition of modified Hidaka et al.

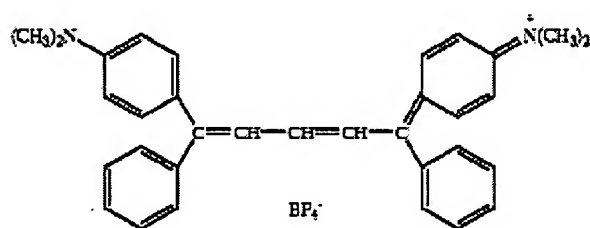
8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hidaka et al. (WO 00/29214) in view of Susukida et al. (WO 00/34829, wherein the citations are from the English equivalent, US Patent 6,475,693) as applied to claim 2 above and in further view of Tsuruya (JP 2002-189294).

With regard to claims 2 and 9, Hidaka modified by Susukida teach a composition comprising a m-cresol/p-cresol/phenol novolak resin, a photo-thermal conversion material, a solubility-suppressing agent and Cymel 300 melamine-formaldehyde resin, wherein the dissolution inhibitor meets the limitations of formula (2) as applied to claim 2 above (see paragraph 4 of the Office Action).

Hidaka et al. further disclose that the photo-thermal conversion agent can be a compound of formulas (IV) and (V):



(IV) (compound S-43 on page 22)

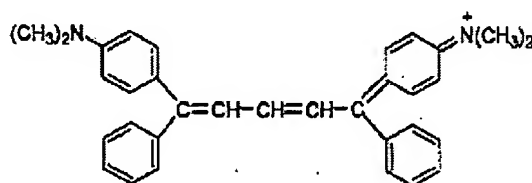


(V) (compound S-44 on page 22) but Hidaka et al. and Susukida et al. fail to disclose a compound as the one represented by the formula (3) of the instant application.

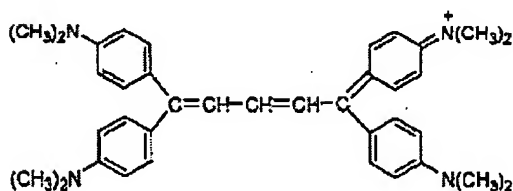
Tsuruya discloses a positive image forming composition comprising a photothermal converting material and an alkali-soluble resin which contains a novolak resin and/or phenolic resin (abstract). The composition can also contain a dissolution

retardant (par.0054), equivalent to the dissolution inhibitor of the instant application and a crosslinking agent, such as Cymel 300 (par. 0055 and par. 0068), which is a melamine-formaldehyde resin, as disclosed in par.0016 of Hu et al. (US Pg-Pub 2003/0100686). The positive image forming material of Tsuruya provide a printing plate with a large development latitude and excellent in processing stability (abstract).

The photo-thermal converting material ("light-to-heat conversion material") is a compound that transform absorbed light into heat, said absorbed light having the wavelength preferably in the range of 800 to 1,100 nm (par.0011). Tsuruya further discloses that the photo-thermal converting material can be a compound of formula (VI) or (VII):



(VI)



(VII)

(compounds III-1 and III-3 in par.0036), with an anion portion X^- being p-toluene sulfonic acid ($\text{p-CH}_3\text{-C}_6\text{H}_4\text{SO}_3^-$), Cl^- , Br^- , I^- , ClO_4^- , PF_6^- , BF_4^- , benzene sulfonic acid (par.0028).

The compound of formula (VI) is equivalent to the compounds of formula (3) of the instant application, where R^7 and R^9 are $-N(CH_3)_2$ groups, R^8 and R^{10} are hydrogen atoms and Y^- is $p\text{-CH}_3\text{-C}_6\text{H}_4\text{SO}_3^-$

The compound of formula (VII) is equivalent to the compounds of formula (3) of the instant application, where R^7 , R^8 , R^9 , R^{10} are all $-N(CH_3)_2$ groups and Y^- is $p\text{-CH}_3\text{-C}_6\text{H}_4\text{SO}_3^-$.

Since the compounds of formulas (VI) and (VII) are functionally equivalent to the photo-thermal converting material of formulas (IV) and (V) of Hidaka et al., and are successfully used by Tsuruya in a positive -working image forming layer of a printing plate (Tsuruya, abstract), it would have been obvious for one of ordinary skill in the art at the time of the invention to use compounds of formulas (VI) and (VII) of Tsuruya as photo-thermic converting materials in the composition of modified Hidaka et al.

Response to Amendment

9. The objection to claims 6 and 11 was withdrawn following the applicant's amendment.

Response to Arguments

10. Applicant's arguments with respect to claim have been considered but are moot in view of the new grounds of rejection.

The applicant's arguments are showing how the amended claims are distinct over the prior art. The arguments have been considered but they are moot in view of the new grounds of rejection.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anca Eoff whose telephone number is 571-272-9810. The examiner can normally be reached on Monday-Friday, 6:30 AM-4:00 PM, EST.

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Art Unit: 1795

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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